DOCUMENT RESUME

ED 092 092 IR 000 650

AUTHOR Coulter, Richard J.
TITLE Background Variables and Their Relationship to Stimulation Responses.
PUB DATE 16 Apr 74
NOTE 11p.; Paper presented at the Annual Meeting of the American Educational Research Association (59th, Chicago, Illinois, April 1974)

EDRS PRICE MF-$0.75 HC-$1.50 PLUS POSTAGE
DESCRIPTORS *Administrative Personnel; *Administrator Background; Administrator Education; Age; Decision Making; Educational Background; Employment Experience; Management Games; *Research Methodology; Response Mode; *Simulation

ABSTRACT

Relevant variables for educational administrators in a problem solving, simulation situation were examined. The study analyzed choice selections (overt responses) and physiological activity (covert responses) as related to age, experience, and educational background. The physiological activities were defined as heart rate and galvanic skin response, while the choice selections were solutions to problems encountered in a teacher strike where the subjects simulated the role of principal. Using chi-square and analysis of variance, there were no significant results at the .05 level, but a further analysis at the .40 level produced a significant relationship between the administrator variables and the physiological activities. But even at this higher level there was no significant relationship between the choice selections and the other variables. (WH)

6.0

ED 092092

BACKGROUND VARIABLES AND THEIR RELATIONSHIP TO STIMULATION RESPONSES

DR. RICHARD J. COULTER, SUPT.
North Union Local Schools
Union County
Richwood, Ohio

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY.

PRESENTED TO:

AERA Annual Meeting
Chicago Conference

Tuesday
April 16, 1974

IR 000 650

ABSTRACT

Educational administration is using simulation as a technique of instruction and research. This study analyzed choice selection and physiological activity in a simulated situation as related to age, experience, and educational background. The major concern was centered on the analysis of the simulation technique in combination with problem solving (decision making) and physiological responses.

The responses of the participants were analyzed in three different groupings: age (34 and under/35 and over), experience (as a principal or assistant/no such experience), educational background (under 70 graduate quarter hours/over 70 graduate quarter hours). The overt responses (choice selection) were analyzed using chi square. Covert responses (HR and GSP) were analyzed using analysis of variance. The groups formed by the dichotomization of the variables were considered different if significant at the .05 level.

On the basis of the analysis at the .05 level, it is concluded that there is no significant difference in the means of the covert (physiological) responses between participants when grouped by age, experience, or educational background. Although the chi square analysis of some individual problems was significant and could imply a need for further study of similar incidents, it is concluded that there is no significant relationship between overt response selection and the age, experience, or educational background of the participant.

Since this was a new and unique way of researching simulation, the data was also analyzed at the .40 level of significance (greater than chance). At this level, GSP amplitude and HR were significant when compared by the three variables--age, experience, and educational background. Using this level to examine the overt responses, there was no additional significance when examined by age. However, there was additional significance in the experience and educational background groups. These results indicate a need for further examination of this type of simulation.

BACKGROUND VARIABLES AND THEIR RELATIONSHIP TO SIMULATION RESPONSES

In many states, certification requirements for administrative positions in the public school require certain amounts of experience - either teaching or lower level administrative. Simulation and gaming have been studied in business to replace or coincide with experiences gained on the job. In the last decade, education has started to scratch the surface of the various ways simulation can be used (Weinberger,1965). Simulation has been used in educational administration, but mostly at the college or university level and in a classroom situation or at best, small group work (Bolton,1971). The only evaluation of these simulations is through general questionnaires asking the student's opinion of his simulated experience. Studies involving gaming and simulation have pointed out that the risk factor in decision making could be connected with the number of participants working together (Wallach and Kogan,1965). Therefore, results from group simulations could be significantly different from results gathered on an individual one-to-one basis (Siegel and Zajonc, 1967). Many times in public education, the old adage, 'the buck stops here' makes the final decision an individual one. Under the guidance of Bill J. Reynolds at Bowling Green State University, a continuing project to study simulation in education on a one-to-one basis is in its third phase. This is a report on one of the sections of Phase I of this project (Project CORES - Covert-Overt Responses to Educational Simulation). Phase I includes a study of attitude towards simulation, the reactions during simulation to dynamic and static media,

and background variables and their relationship to simulation responses - the subject of this report.

The data for this research was gathered, using a simulated office with a rear projection screen and telephone. Each participant experienced the simulation individually. During the simulated program, the participant's heart rate and galvanic skin potential were measured. The combination of these two responses were used as a physiological index or covert response. The overt responses consist of the participant's solution to the problems presented during the simulation.

The general premise of the simulated program revolves around the role of the principal during a faculty strike, not recognized by the superintendent and the board of education. The principal has been told in the past to be prepared to run his schools, although many of his teachers might be absent. After receiving necessary background information, the participant faces this situation, and the seven problems presented take place in the first half hour just before the opening of the school day. The seven problems that were presented to participants were planned to present the following situations for analysis:

1. A teacher from the 'old school' who does not believe in strikes is being threatened by members of the Teachers Association to stay home. She telephones the participant (principal).
2. The P.T.A. president involved in the planning with the principal has volunteers ready and is asking how they are to be dispersed.

3. A teacher who could be considered a 'company man' is asking the principal how he can be of the most help in this situation.
4. The local and state teachers association presidents are trying to pressure the principal into closing school so the strike will be more effective.
5. A student in the school who was not in a supervised area is injured to the extent that he was taken to the hospital.
6. A conniving teacher is trying to bargain the services of his department in this crisis situation for a promise of favors in the future.
7. Not understanding the complexity of the situation, the student council president is requesting to have an ecology-based clean-up/pick-up day since there will not be too much going on at school anyway.

The participant had the opportunity to select from five different responses to each problem. In each case, the five selections were combined into two or three general catagories for analysis.

In response to the 'old school' teacher, the participant had to select a solution that gave advice or choose one of those where no suggestion was made. In response to the P.T.A. president, the participant in his role as principal had to select from one of the following general responses: (1) have most of the volunteers come to school and be on hand, (2) have about half of them come to school and the other half stay home to be called if necessary, (3) have all of them stay home

to be called. There were three general groups of answers that could be selected in response to the 'company man': (1) have the teacher run the classes as usual, (2) have them teach their classes and help with volunteers, (3) run a mass study hall of some type in the gymnasium. The principal could respond to the pressure in a polite manner, but explain he is not going to close school, or wash his hands of the situation completely and tell them to speak to the superintendent in response to the teachers association representatives. In responding to the accident, the principal has the opportunity to handle the problem as usual - with caution, or report to the superintendent not assuming the complete responsibility. In responding to the conniving teacher, the participant has the opportunity to deal, or not even discuss the situation. In responding to the student council president, the principal had the general option of participating in some manner, or refuse to participate in any manner.

As a superintendent of schools and representative of the board of education, I am interested in simulation as a tool in in-service training and selection of administrators. This interest is evident in the selection of variables considered for study. Age, experience and educational background - in many instances, are the variables now being used for the initial screening or selection of school administrators.

The three variables being examined have considerable overlap. In many cases, the older participant was the most educated and had the larger number of years of experience, but for statistical analysis, the age factor was divided 34 and under, and 35 and over. This age division was determined through the examination of notices advertising job vacancies. The majority of these listed the requirements for a

principal as 35 to 55 years old. Therefore, under 35 and 35 and over was a logical breakpoint. To analyze the amount of education, it was necessary to decide upon a breaking point based on quarter hours. To become a school administrator in Ohio, it is necessary to have a Master's Degree which requires 45 to 50 hours of graduate work. In order to keep an administrative certificate, it is necessary to take additional hours to renew this certificate, therefore 70 quarter hours was used as the division point because it would denote those administrators taking hours not necessary for the principalship, but for self-improvement or a different job classification. The experience variable was analyzed using no experience as a principal or assistant principal as compared to experience as a principal or assistant principal. The simulated program dealt directly with a principalship and any experience at all would be a logical separation in this comparison.

All seven problems were analyzed using chi square to test for significant difference of the participants' responses to the simulated program (overt responses). Analysis of variance was used to analyze the physiological (covert responses) data for the overall program rather than each individual incident.

CONCLUSIONS DRAWN FROM ANALYSIS

When the problems presented were dichotomized by age (34 and under/35 and over) and analyzed using chi square, only the responses to problem 5 were significantly different at the .05 level. This could imply significant difference exists although improbable. Therefore, it is concluded that age does not influence response selection in this

simulated program. The significance reported for problem 5 is probably related to the type of incident presented. This incident involved the injured student and the younger participants showed a greater need for support from superiors. Incidents of this type should be further studied to check on reliability of this response. In an effort to better understand and to present all the information gathered, these problems were also analyzed at the .40 level (level greater than chance) and it was found that problem 5 was still the only problem of the seven that is significant.

The three measures of the respondents' physiological activity - heart rate, GSP frequency and GSP amplitude were analyzed by age using analysis of variance. None of the three measures were significant at the .05 level. It is concluded that there is no significant difference in the physiological responses of the participants when grouped by age. The three measures of physiological activity were also analyzed at the .40 level and did not reflect any additional significance.

All responses to the seven problems presented were dichotomized by experience (experience as a principal, or assistant/no such experience) and analyzed using chi square. The responses to problem 2 and 6 were significantly different at the .05 level. This could imply that a relationship between 'real world' experience and a simulated program exists. However, since none of the remaining five groups of responses were significant at the .05 level, there is probably no significant relationship between response selection and experience of the participant. Therefore, it is concluded that the experience does not influence response selection in this simulated program. The significance reported for problems 2 and

6 is probably related to the type of incident presented. Instance 2 involved use of volunteers. The more experienced participant had a greater tendency to keep all volunteers at the school.

Instance 6 presented a teacher making a deal for his services during the strike. The more experienced participant had a greater tendency to reject the teacher's deal. When the problems were analyzed at .40, one additional problem was significant - Problem 1.

Three measures of the respondents' physiological activity (heart rate, GSP frequency and GSP amplitude) were dichotomized by experience and analyzed using analysis of variance. None of these three measures were significant at the .05 level. It is concluded that there is no significant difference in the physiological responses of the participants when grouped by experience. Of the three measures of physiological activity analyzed using one way analysis of variance and compared to the .40 level, heart rate and GSP amplitude are significant. A more discrete catagorization by experience might provide different results in that experience as a principal or assistant might be related to other supervisory experiences. Also the difference between one or two years of experience compared to no experience might not be significantly different enough to measure.

All responses to the seven problems presented were dichotomized by educational background (over 70 graduate quarter hours/under 70 graduate quarter hours) and analyzed using chi square. Only the responses to Problem 6 were significant at the .05 level. It is possible that a significant difference exists in the responses, but it must be concluded that education does not influence response selection in this simulated program. The significance reported for Problem 6 is probably related to the type of incident presented. The incident involved a

teacher making a deal for his services during the strike. The more educated participant had a greater tendency to reject the teacher's deal. When this problem was analyzed at the .40 level of significance (level greater than chance) it was found that Problems 1, 2, 3 and 6 were significant. This lends credibility to further study.

Three measures of respondents' physiological activity (heart rate, GSP frequency, GSP amplitude) were dichotomized by educational background and analyzed using analysis of variance. None of these three measures were significant at the .05 level. It is concluded there is no significant difference in the physiological responses of the participants when grouped by educational background. Of the three measures of physiological activity analyzed using one way analysis of variance and compared at the .40 level, heart rate and GSP amplitude are significant.

This study had some definite limitations relating to the sample which affects the generalizations and conclusions that can be drawn. It was necessary to use volunteers from the administrative classes at Bowling Green State University and from practicing administrators in the Northwest Sector of Ohio. The number of participants was limited because it was necessary to come to the campus and give up approximately an hour of their time. This resulted in a small sample size (46) and contaminated the sample as a generalizable group.

Notwithstanding the limitations and although the responses to certain incidents were significant and certain measures of physiological activity were significant, the general conclusion that must be reached from the data gathered is that there is no significant difference in

responses to an educational simulation when analyzed using age, experience, and educational background as variables.

Although the conclusions reached from the data gathered from this study are somewhat negative, it is my hope that after much experimentation, simulation in school administration can be refined to the point that success as an administrator, the fatigue factor and the ability to cope with pressures can be determined in a simulated situation before the novice administrator enters an educational program or is hired for a position.

BIBLIOGRAPHY

Bolton, D.L. Using simulation to conduct research in educational administration. In D. L. Bolton (Ed.), The use of simulation in educational administration. Columbus, Ohio: Charles E. Merrill, 1971

Siegel, S. & Zajonc, R. B. Group risk taking in professional decisions. Sociometry. 1967, 30(4), 339-349

Wallach, M. A. & Kogan, N. The roles of information, discussion, and concensus in group risk taking. Journal of experimental social psychology, 1965, 1, 1-19.

Weinberger, M. J. The uses of simulation in the teaching of school administration. (Doctoral dissertation, Columbus University) Ann Arbor, Mich.: University Microfilm, 1965, No. 66-6561.